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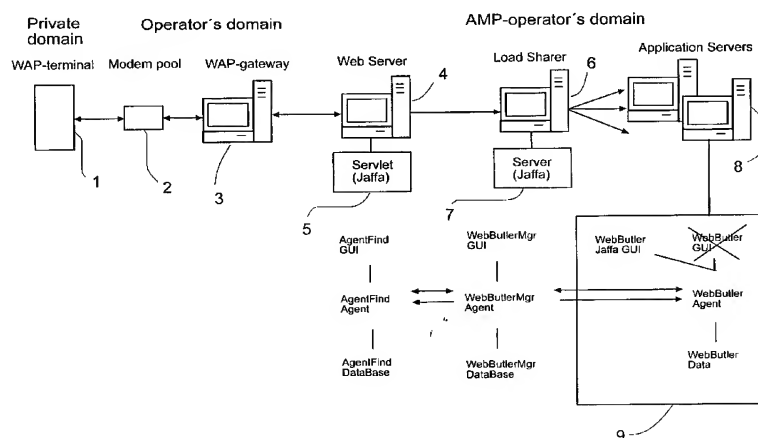
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(54) Title: ARRANGEMENT AND USER INTERFACE TO, FOR MOBILE TERMINALS, PROVIDE ACCESS TO SERVICES



(57) **Abstract:** The invention relates to an arrangement and user interface to, for mobile terminals, provide access to services, especially via Internet, to an agent-based marketplace AMP. The arrangement includes: At least one mobile terminal (1) with wireless protocol (WAP) and which can be connected to a data communication network (Internet); at least one network server (4) located with an operator in the data communication network; at least one application server (8) located with a service provider which can be accessed via the data communication network. According to the invention, the interface (5) is arranged in the network server (4). The interface is arranged to operate by the wireless protocol towards the mobile terminal, and by one to the service provider adapted protocol towards the service provider. The interface is preferably written on the one hand in Java towards the service provider, and on the other in Jaffa (Java Framework) towards the mobile terminal. By moving the user's logic to a server on the Internet, and utilizing a specific interface, the invention makes it possible that such services can be utilized from a mobile terminal.



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ARRANGEMENT AND USER INTERFACE TO, FOR MOBILE TERMINALS,
PROVIDE ACCESS TO SERVICES

Field of the invention

5 The present invention relates to an arrangement and
user interface to, for mobile terminals, provide access to
services, especially via Internet, to an agent-based
marketplace AMP. AMP is originally developed for stationary
computers. By moving the user's logic to a server on the
10 Internet and utilizing a specific interface, the invention
makes possible that such services can be utilized from a
mobile terminal.

Prior art

15 It is previously known to provide servers with
interface for "thin mobile clients", that is, mobile
clients with limited processor power and memory. See for
instance US 5,987,256, EP 0 948 233 and WO 99/61983.

 The aim of the present invention is in particular to
20 adapt AMP to such thin clients. This is effected by
providing a specific interface for AMP which operates by a
wireless protocol towards the mobile terminal.

Summary of the invention

25 The invention provides an arrangement of above
mentioned kind including: At least one mobile terminal with
wireless protocol and which can be connected to a data
communication network; at least one network server located
with an operator in the data communication network; at
30 least one application server located with a service
provider which can be accessed via the data communication
network.

 According to the invention, an interface is arranged
in the network server. The interface is arranged to operate
35 by the wireless protocol towards the mobile terminal and by

one to the service provider adapted protocol towards the service provider.

The interface is preferably written on the one hand in Java towards the service provider, and on the other in
5 Jaffa (Java framework) towards the mobile terminal.

The invention also relates to the interface as such. The invention is defined in the enclosed patent claims 1 and 6, whereas preferable embodiments are presented in the subclaims.

10

Brief description of the drawing

The invention is described below in detail with reference to enclosed drawing, the only figure of which schematically illustrates a system which includes the
15 invention.

Detailed description of preferred embodiments

As has been mentioned by way of introduction, systems have been developed to deal/trade with services via
20 Internet. A service provider has application servers which can be accessed via Internet. In these servers agents are created which execute services at request of the one who wants to buy the service. This is called an agent-based marketplace AMP. Originally the system is intended for
25 stationary computers with high capacity regarding processing power and memory. When one now wants to make it possible for mobile users to access services via their mobile terminals, the system has to be adapted because the mobile terminals have limited processing power and memory.
30 The mobile terminals are often called thin clients.

There already exists a protocol developed for wireless communication, namely WAP (Wireless Application Protocol), which is suitable in the wireless environment WAE (Wireless Application Environment) towards Internet. The software in
35 the application server is generally written in the program language Java. There also exists a specifically developed

language Jaffa (Java Framework) which consists of Java class files. Jaffa is adapted so that one in ordinary Java can write an interface to the functionality in AMP. Jaffa also provides functionality to in Java write a user
5 interface towards WAP. By that, it will be possible to, by WLM (Wireless Mark-up Language) from WAP describe the user interface towards the AMP-service, which results in that the service will be possible to use at just any mobile terminal which supports WAP.

10 The system which includes the invention is described schematically in the figure. The system can be divided into a private domain, an operator domain, and the AMP-operator's domain. In the private domain there is the user or the one who wants to buy a service by means of a mobile
15 terminal 1 with WAP.

The operator's domain consequently belongs to the telecommunication operator and includes a modem pool 2, a WAP gateway 3, and a Web server or network server 4. In the network server said user interface 5 is implemented.

20 In the AMP-operator's domain there is a load sharer 6 with belonging logic 7 and a number of application servers 8. In respective application server different agents are created and operating, here exemplified by WebButler 9. The agent, however, can be replaced by just any server software
25 written in Java or with some modification any other.

The agent 9 includes functions such as WebButlerManager (Mgr) GUI (Graphical User Interface), WebButlerManager Agent, WebButlerManager Database, AgentFind GUI, AgentFind Agent and AgentFind Database.
30 These functions are not particularly affected by the present invention.

In the figure can be seen that the user interface, which previously normally was in a stationary computer with the person who used the service, has been moved to the
35 network server 4, and exists as a logic part 5 written in Jaffa. Jaffa is based on Java's servlet- structure and has

extended this by instead of producing dynamic HTML
(HyperText Mark-up Language) from Java-code, producing
dynamic WML by means of ordinary Java. In other words, the
user experiences the requested service as a WAP-service in
5 his/her mobile terminal 1. The interface 5 attends to that
the WML-pages all the time are adapted to the user's doing
and his/her adjustments. From the service providers' point
of view it looks as just any user. The user interface
functions as a communication interface between the WAP-
10 browser in the terminal and the agent 9 which is located at
an application server 8.

Jaffa also includes the servlet-structure for load-
sharing, which is utilized in the logic 7 in the load
sharer 6.

15 Consequently the invention makes it possible that thin
clients, such as mobile terminals, can utilize services
with an operator who provides an agent-based marketplace
AMP. The invention is only limited by the patent claims
below.

PATENT CLAIMS

1. Arrangement to, for mobile terminals, provide access to services on an agent based marketplace (AMP) including: At least one mobile terminal (1) with wireless protocol (WAP) and which can be connected to a data communication network (Internet); at least one network server (4) located with an operator in the data communication network; at least one application server (8) located with a service provider which can be accessed via the data communication network, c h a r a c t e r i z e d in that an interface (5) is arranged in the network server (4), at which the interface is arranged to operate by the wireless protocol (WAP) towards the mobile terminal (1) and by one to the service provider adapted protocol towards the service provider.

2. Arrangement as claimed in patent claim 1, c h a r a c t e r i z e d in that the interface (5) is written on the one hand in Java towards the service provider, an on the other in Jaffa (Java Framework) towards the mobile terminal (1).

3. Arrangement as claimed in patent claim 2, c h a r a c t e r i z e d in that the interface (5) is arranged to describe services by the code WML (Wireless Mark-up Language) according to WAP (Wireless Application Protocol).

4. Arrangement as claimed in any of the previous patent claims, c h a r a c t e r i z e d in that an agent (9) is arranged in the application server (8) to execute a service.

5. Arrangement as claimed in patent claim 2 and 4,

c h a r a c t e r i z e d in that the agent (9) is produced by software written in Java.

6. Interface to, for mobile terminals, provide access
5 to services on an agent based marketplace (AMP), in a
system including: At least one mobile terminal (1) with
wireless protocol (WAP) and which can be connected to a
data communication network (Internet); at least one network
server (4) located with an operator in the data
10 communication network; at least one application server (8)
located with a service provider which can be accessed via
the data communication network, c h a r a c t e r i z e d
in that the interface (5) is arranged to operate by the
wireless protocol (WAP) towards the mobile terminal (1) and
15 by one to the service provider adapted protocol towards the
service provider.

7. Interface as claimed in patent claim 6,
c h a r a c t e r i z e d in that the interface (5) is
20 written on the one hand in Java towards the service
provider, and on the other in Jaffa (Java Framework)
towards the mobile terminal (1).

8. Interface as claimed in patent claim 6,
25 c h a r a c t e r i z e d in that the interface (5) is
arranged to describe services by the code WML (Wireless
Mark-up Language) according to WAP (Wireless Application
Protocol).

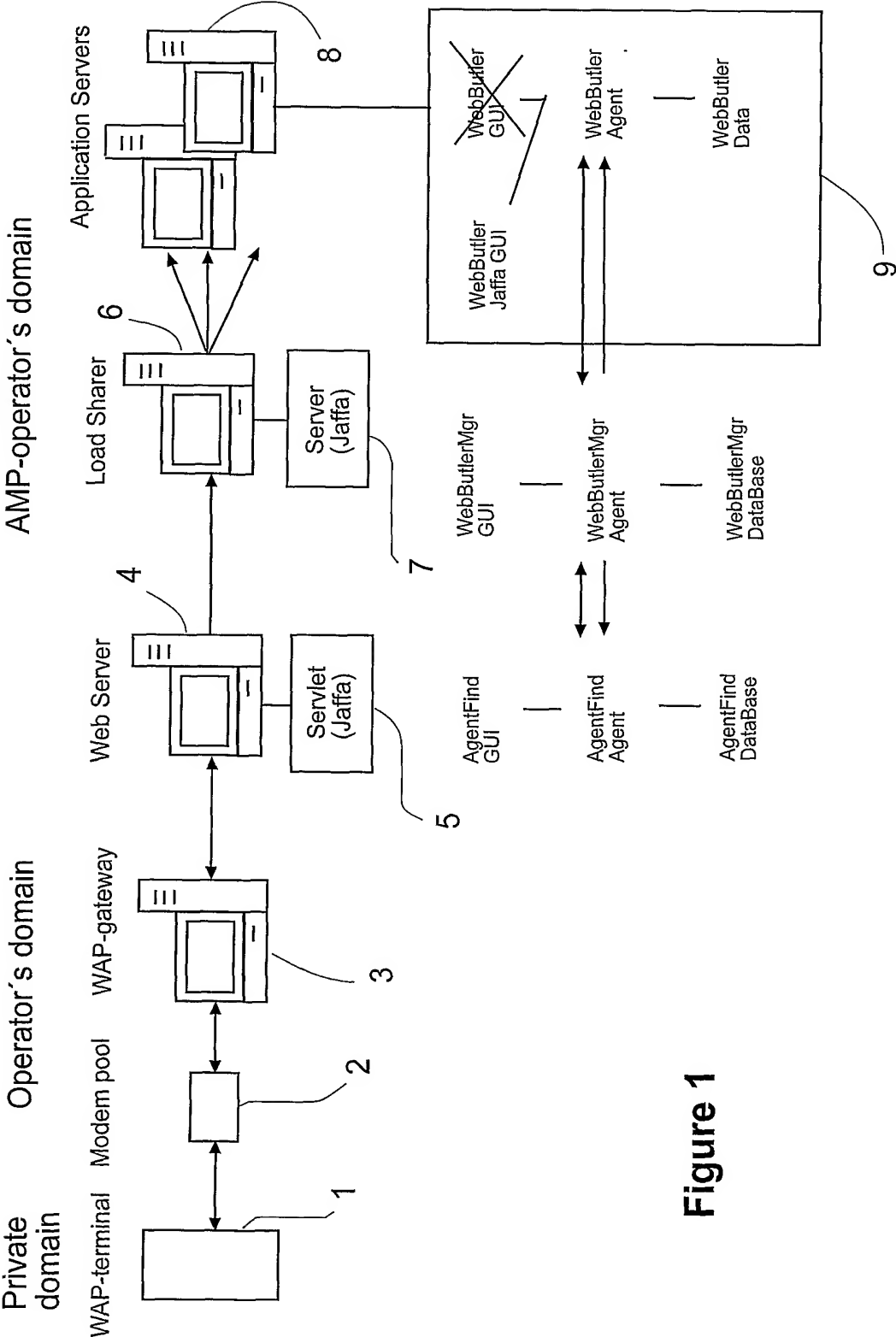


Figure 1

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 01/01290

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04Q 7/22, H04L 29/06, H04L 12/66

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04Q, H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WAP Forum, "Wireless Application Protocol Architectu Specification." http://www.wapforum.org/ , Wap Forum ltd, April 30, 1998. Page 11-13. --	1-8
P,A	Chi-Hsing Chu, et al. Buildning a XML-Based uifiend Unified User Interface System Under J2EE Architecture. 11-13 Dec. 2000. Page 208-210. --	1-8
A	Marcin Metter, Dr Robert Colomb. WAP enabling HTML Applications. 31 Jan-3 Feb, 2000. Page 49-52. -- -----	1-8

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

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